FIG. 1

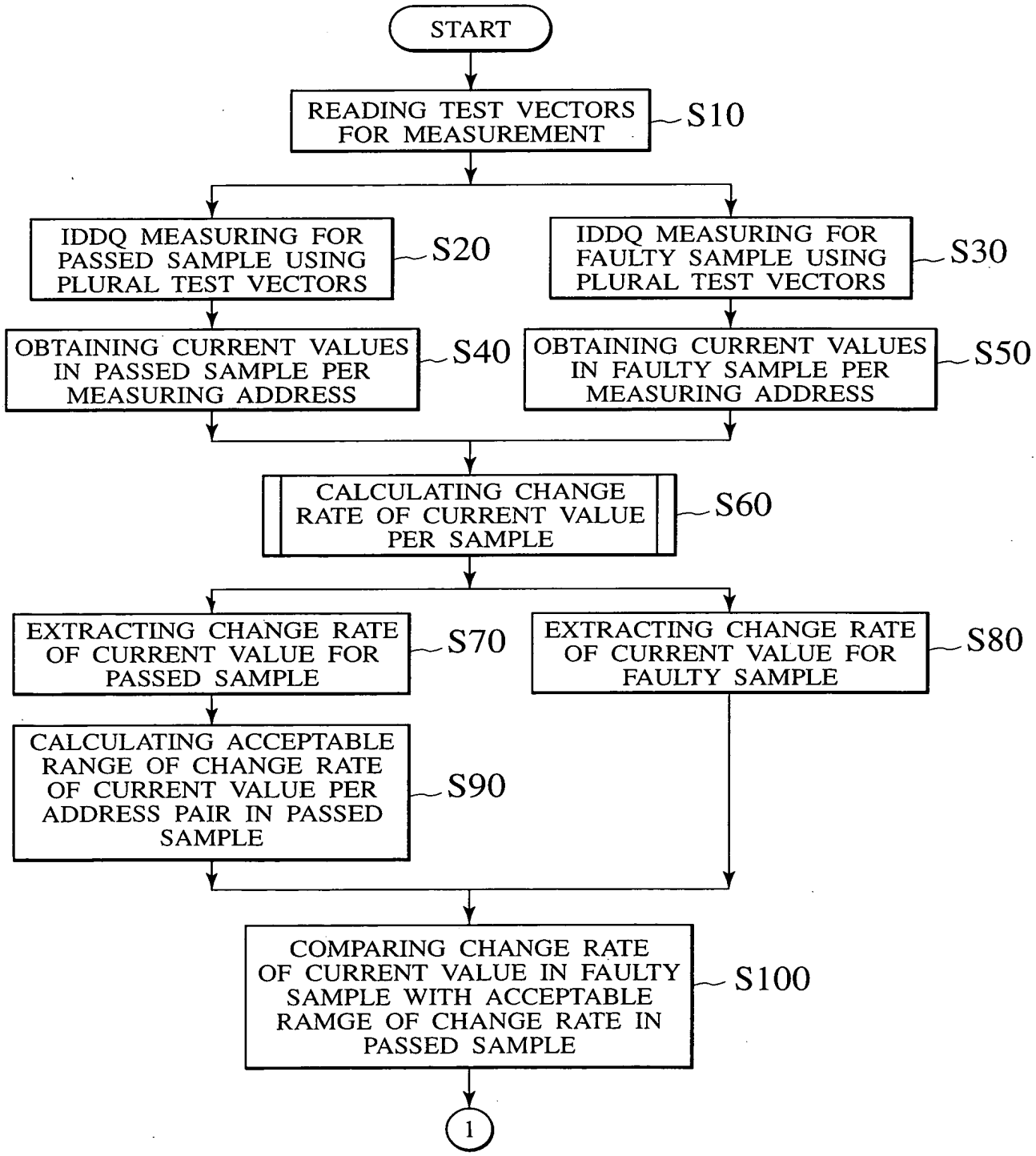

START
READING TEST VECTORS FOR MEASUREMENT
S10
IDDQ MEASURING FOR PASSED SAMPLE USING PLURAL TEST VECTORS
S20
IDDQ MEASURING FOR FAULTY SAMPLE USING PLURAL TEST VECTORS
S30
OBTAINING CURRENT VALUES IN PASSED SAMPLE PER MEASURING ADDRESS
S40
OBTAINING CURRENT VALUES IN FAULTY SAMPLE PER MEASURING ADDRESS
S50
CALCULATING CHANGE RATE OF CURRENT VALUE PER SAMPLE
S60
EXTRACTING CHANGE RATE OF CURRENT VALUE FOR PASSED SAMPLE
S70
EXTRACTING CHANGE RATE OF CURRENT VALUE FOR FAULTY SAMPLE
S80
CALCULATING ACCEPTABLE RANGE OF CHANGE RATE OF CURRENT VALUE PER ADDRESS PAIR IN PASSED SAMPLE
S90
COMPARING CHANGE RATE OF CURRENT VALUE IN FAULTY SAMPLE WITH ACCEPTABLE RAMGE OF CHANGE RATE IN PASSED SAMPLE
S100
1

FIG. 2

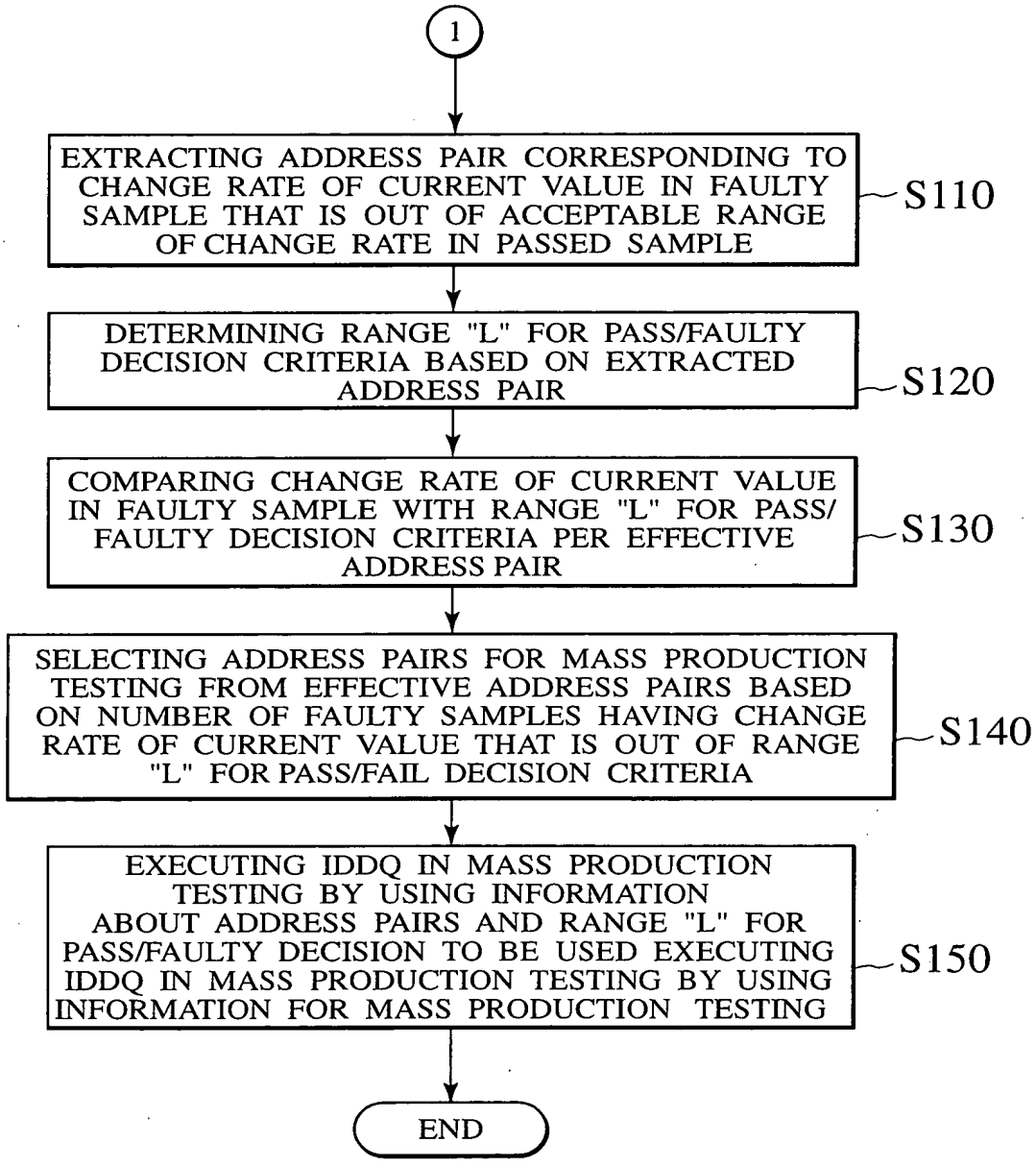

1
EXTRACTING ADDRESS PAIR CORRESPONDING TO CHANGE RATE OF CURRENT VALUE IN FAULTY SAMPLE THAT IS OUT OF ACCEPTABLE RANGE OF CHANGE RATE IN PASSED SAMPLE
S110
DETERMINING RANGE "L" FOR PASS/FAULTY DECISION CRITERIA BASED ON EXTRACTED ADDRESS PAIR
S120
COMPARING CHANGE RATE OF CURRENT VALUE IN FAULTY SAMPLE WITH RANGE "L" FOR PASS/FAULTY DECISION CRITERIA PER EFFECTIVE ADDRESS PAIR
S130
SELECTING ADDRESS PAIRS FOR MASS PRODUCTION TESTING FROM EFFECTIVE ADDRESS PAIRS BASED ON NUMBER OF FAULTY SAMPLES HAVING CHANGE RATE OF CURRENT VALUE THAT IS OUT OF RANGE "L" FOR PASS/FAIL DECISION CRITERIA
S140
EXECUTING IDDQ IN MASS PRODUCTION TESTING BY USING INFORMATION ABOUT ADDRESS PAIRS AND RANGE "L" FOR PASS/FAULTY DECISION TO BE USED EXECUTING IDDQ IN MASS PRODUCTION TESTING BY USING INFORMATION FOR MASS PRODUCTION TESTING
S150
END

FIG. 3A

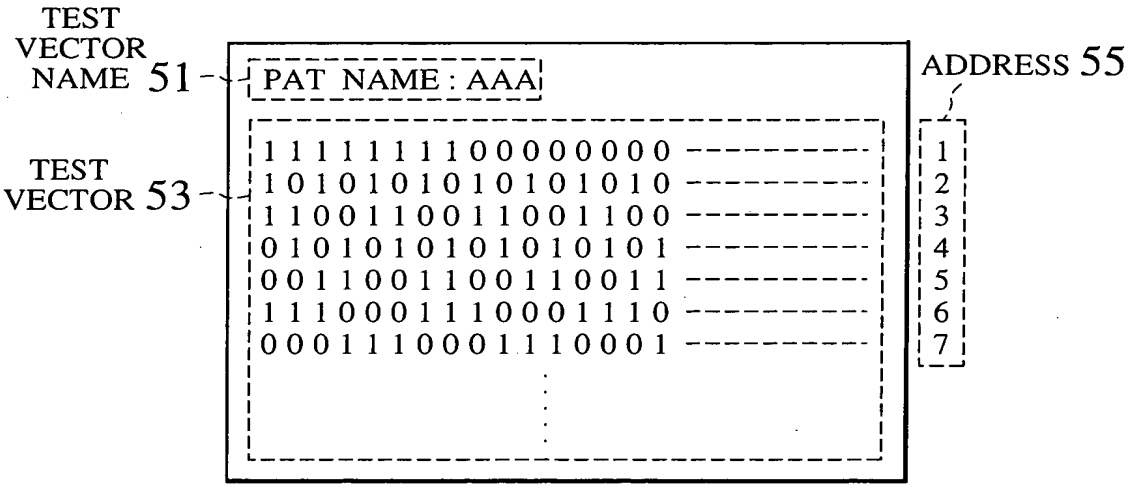

TEST VECTOR NAME 51
PAT NAME : AAA
TEST VECTOR 53
1 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 ----------
1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 ----------
1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0 ----------
0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 ----------
0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 ----------
1 1 1 0 0 0 1 1 1 0 0 0 1 1 1 0 ----------
0 0 0 1 1 1 0 0 0 1 1 1 0 0 0 1 ----------
ADDRESS 55
1
2
3
4
5
6
7

FIG. 3B

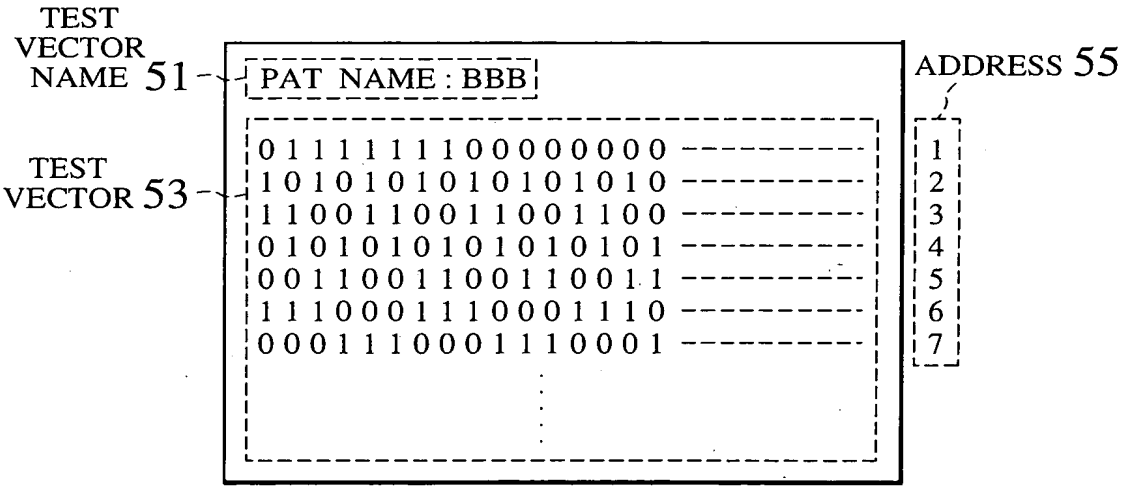

TEST VECTOR NAME 51
PAT NAME : BBB
TEST VECTOR 53
0 1 1 1 1 1 1 1 0 0 0 0 0 0 0 0 ----------
1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 ----------
1 1 0 0 1 1 0 0 1 1 0 0 1 1 0 0 ----------
0 1 0 1 0 1 0 1 0 1 0 1 0 1 0 1 ----------
0 0 1 1 0 0 1 1 0 0 1 1 0 0 1 1 ----------
1 1 1 0 0 0 1 1 1 0 0 0 1 1 1 0 ----------
0 0 0 1 1 1 0 0 0 1 1 1 0 0 0 1 ----------
ADDRESS 55
1
2
3
4
5
6
7

FIG. 4

PASSED SAMPLE PA

PAT=AAA	ADR=21	IDDQ=1uA
	ADR=43	IDDQ=3uA
	ADR=65	IDDQ=5uA
	ADR=87	IDDQ=1uA
	ADR=109	IDDQ=1uA
	ADR=111	IDDQ=1uA
	ADR=113	IDDQ=1uA
PAT=BBB	ADR=17	IDDQ=1uA
	ADR=19	IDDQ=1uA
	ADR=21	IDDQ=1uA
	ADR=24	IDDQ=1uA
	ADR=26	IDDQ=1uA
	ADR=28	IDDQ=1uA
	ADR=30	IDDQ=1uA
PAT=CCC	ADR=33	IDDQ=2uA
	ADR=36	IDDQ=1uA
	ADR=37	IDDQ=5uA
	ADR=49	IDDQ=1uA

PASSED SAMPLE PB

PAT=AAA	ADR=21	IDDQ=2uA
	ADR=43	IDDQ=7uA
	ADR=65	IDDQ=10uA
	ADR=87	IDDQ=2uA
	ADR=109	IDDQ=2uA
	ADR=111	IDDQ=2uA
	ADR=113	IDDQ=2uA
PAT=BBB	ADR=17	IDDQ=2uA
	ADR=19	IDDQ=2uA
	ADR=21	IDDQ=2uA
	ADR=24	IDDQ=2uA
	ADR=26	IDDQ=2uA
	ADR=28	IDDQ=2uA
	ADR=30	IDDQ=2uA
PAT=CCC	ADR=33	IDDQ=5uA
	ADR=36	IDDQ=2uA
	ADR=37	IDDQ=7uA
	ADR=49	IDDQ=2uA

PASSED SAMPLE PC

PAT=AAA	ADR=21	IDDQ=6uA
	ADR=43	IDDQ=10uA
	ADR=65	IDDQ=15uA
	ADR=87	IDDQ=6uA
	ADR=109	IDDQ=6uA
	ADR=111	IDDQ=6uA
	ADR=113	IDDQ=6uA
PAT=BBB	ADR=17	IDDQ=6uA
	ADR=19	IDDQ=6uA
	ADR=21	IDDQ=6uA
	ADR=24	IDDQ=6uA
	ADR=26	IDDQ=6uA
	ADR=28	IDDQ=6uA
	ADR=30	IDDQ=6uA
PAT=CCC	ADR=33	IDDQ=6uA
	ADR=36	IDDQ=10uA
	ADR=37	IDDQ=15uA
	ADR=49	IDDQ=6uA

FIG. 5

FAULTY SAMPLE FA

PAT=AAA	ADR=21	IDDQ=2uA
	ADR=43	IDDQ=3uA
	ADR=65	IDDQ=10uA
	ADR=87	IDDQ=2uA
	ADR=109	IDDQ=5uA
	ADR=111	IDDQ=5uA
	ADR=113	IDDQ=2uA
PAT=BBB	ADR=17	IDDQ=2uA
	ADR=19	IDDQ=2uA
	ADR=21	IDDQ=5uA
	ADR=24	IDDQ=5uA
	ADR=26	IDDQ=5uA
	ADR=28	IDDQ=2uA
	ADR=30	IDDQ=2uA
PAT=CCC	ADR=33	IDDQ=3uA
	ADR=36	IDDQ=2uA
	ADR=37	IDDQ=5uA
	ADR=49	IDDQ=2uA

FAULTY SAMPLE FB

PAT=AAA	ADR=21	IDDQ=1uA
	ADR=43	IDDQ=4uA
	ADR=65	IDDQ=30uA
	ADR=87	IDDQ=1uA
	ADR=109	IDDQ=1uA
	ADR=111	IDDQ=1uA
	ADR=113	IDDQ=1uA
PAT=BBB	ADR=17	IDDQ=1uA
	ADR=19	IDDQ=5uA
	ADR=21	IDDQ=1uA
	ADR=24	IDDQ=1uA
	ADR=26	IDDQ=1uA
	ADR=28	IDDQ=1uA
	ADR=30	IDDQ=1uA
PAT=CCC	ADR=33	IDDQ=3uA
	ADR=36	IDDQ=1uA
	ADR=37	IDDQ=4uA
	ADR=49	IDDQ=1uA

FAULTY SAMPLE FC

PAT=AAA	ADR=21	IDDQ=14.72uA
	ADR=43	IDDQ=15.20uA
	ADR=65	IDDQ=15.80uA
	ADR=87	IDDQ=14.00uA
	ADR=109	IDDQ=17.08uA
	ADR=111	IDDQ=15.82uA
	ADR=113	IDDQ=15.26uA
PAT=BBB	ADR=17	IDDQ=17.80uA
	ADR=19	IDDQ=17.82uA
	ADR=21	IDDQ=15.24uA
	ADR=24	IDDQ=15.94uA
	ADR=26	IDDQ=16.54uA
	ADR=28	IDDQ=17.20uA
	ADR=30	IDDQ=17.20uA
PAT=CCC	ADR=33	IDDQ=17.80uA
	ADR=36	IDDQ=17.72uA
	ADR=37	IDDQ=14.62uA
	ADR=49	IDDQ=15.40uA

FIG. 6A

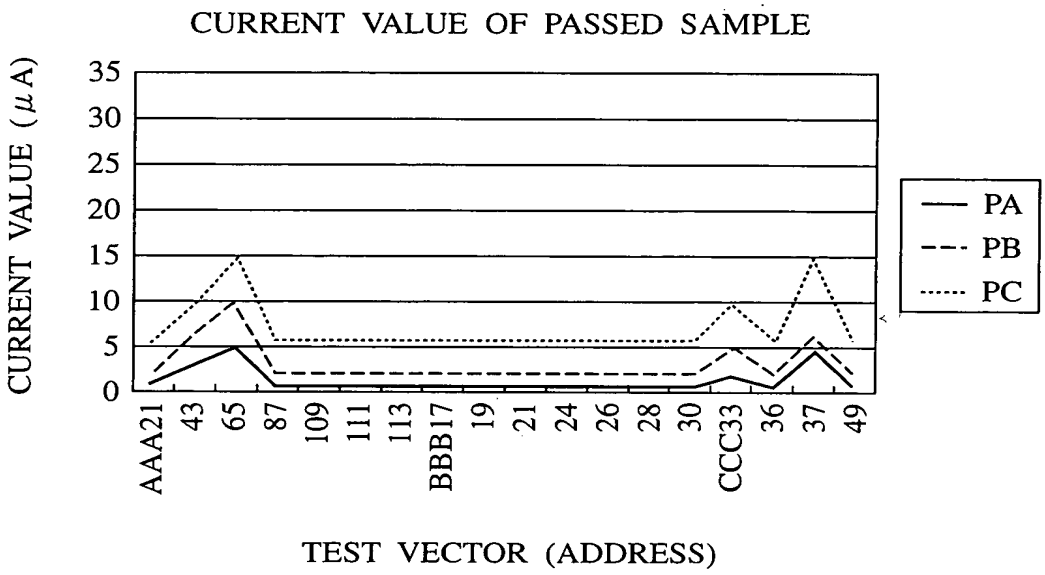

CURRENT VALUE OF PASSED SAMPLE
CURRENT VALUE (μA)
35
30
25
20
15
10
5
0
AAA21
43
65
87
109
111
113
BBB17
19
21
24
26
28
30
CCC33
36
37
49
PA
PB
PC
TEST VECTOR (ADDRESS)

FIG. 6B

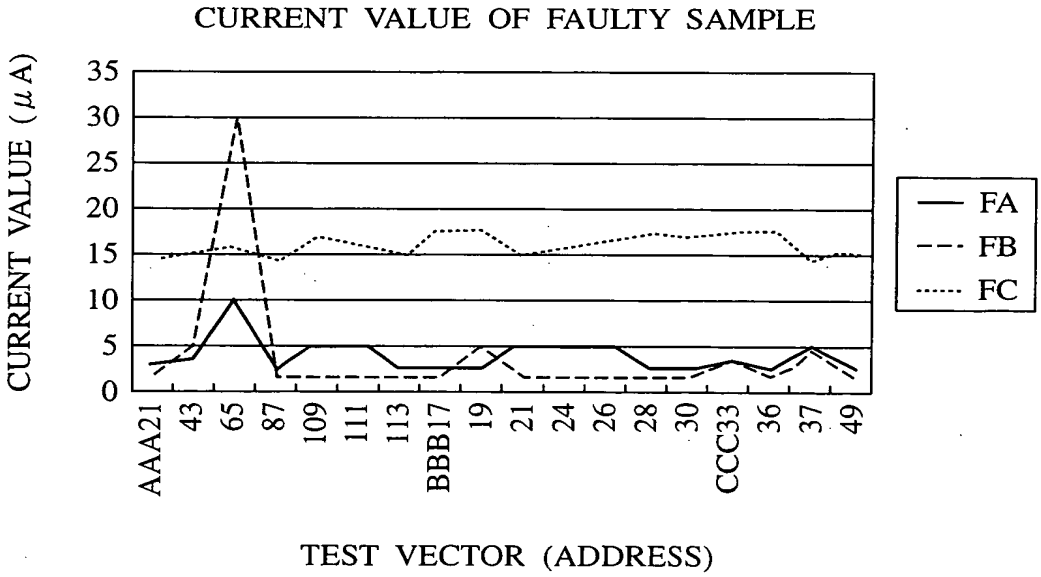

CURRENT VALUE OF FAULTY SAMPLE
CURRENT VALUE (μA)
35
30
25
20
15
10
5
0
AAA21
43
65
87
109
111
113
BBB17
19
21
24
26
28
30
CCC33
36
37
49
FA
FB
FC
TEST VECTOR (ADDRESS)

FIG. 7

EXAMPLE OF DEFINITION FOR CHANGE RATE "C" OF CURRENT VALUE

WHEN $b > a$

$$C = \frac{b-a}{a}$$

WHEN $a > b$

$$C = \frac{b-a}{b}$$

a: CURRENT VALUE BEFORE CHANGE
b: CURRENT VALUE AFTER CHANGE

FIG. 8

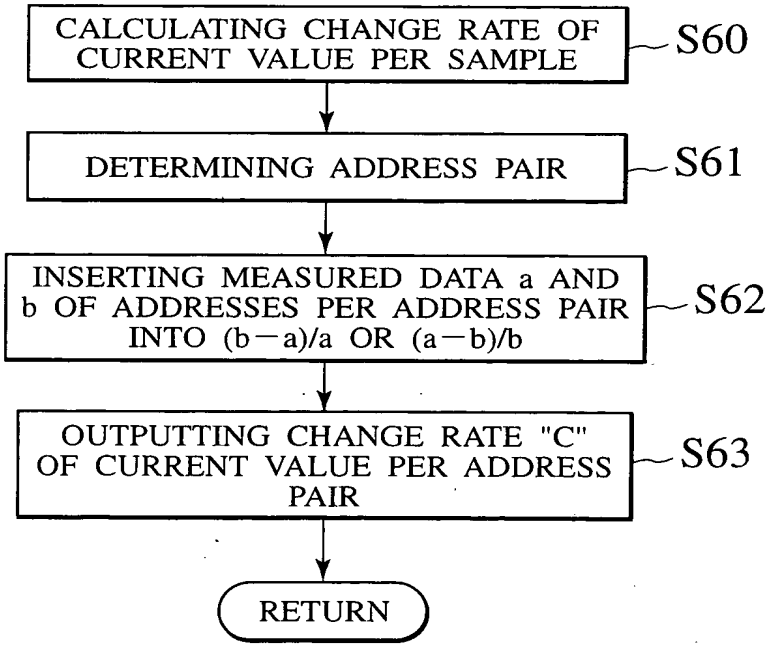


FIG. 9

ONE EXAMPLE OF CHANGE RATE OF CURRENT VALUE PER ADDRESS PAIR IN PASSED SAMPLE

COMBINATION OF CONTINUOUS TWO TEST VECTORS (ADDRESS PAIR)	CHANGE RATE			STANDARD RANGE OF CHANGE RATE OF CURRENT VALUE				
	PA	PB	PC	MIN. VALUE Cs	MAX. VALUE C1	α	Cs$-\alpha$	C1$+\alpha$
PAT=AAA ADR=21,43	2	2.5	0.7	0.7	2.5	0.9	-0.2	3.4
ADR=43,65	0.7	0.4	0.5	0.4	0.7	0.15	0.25	0.85
ADR=65,87	-4	-4	-1.5	-4	-1.5	1.25	-5.25	-0.25
ADR=87,109	0	0	0	0	0	0	0	0
ADR=109,111	0	0	0	0	0	0	0	0
ADR=111,113	0	0	0	0	0	0	0	0
ADR=113,PAT=BBB ADR=17	0	0	0	0	0	0	0	0
PAT=BBB ADR=17,19	0	0	0	0	0	0	0	0
ADR=19,21	0	0	0	0	0	0	0	0
ADR=21,24	0	0	0	0	0	0	0	0
ADR=24,26	0	0	0	0	0	0	0	0
ADR=26,28	0	0	0	0	0	0	0	0
ADR=28,30	0	0	0	0	0	0	0	0
ADR=30,PAT=CCC ADR=33	1	1.5	0.7	0.7	1.5	0.4	0.3	1.9
PAT=CCC ADR=33,36	-1	-1.5	-0.7	-1.5	-0.7	0.4	-1.9	-0.3
ADR=36,37	4	2.5	1.5	1.5	4	1.25	0.25	5.25
ADR=37,49	-4	-2.5	-1.5	-4	-1.5	1.25	-5.25	-0.25

α : (MAX. VALUE$-$MIN. VALUE)/2

FIG. 11

ONE EXAMPLE OF CHANGE RATE OF CURRENT VALUE PER ADDRESS PAIR IN FAULTY SAMPLE

COMBINATION OF CONTINUOUS TWO TEST VECTORS (ADDRESS PAIR)	RELATIONSHIP TO CHANGE RATE "C"/RANGE "L" OF DECISION CRITERIA (Cs-α<L<C1+α)						RANGE "L" OF DECISION CRITERIA	
	FA	OUT OF RANGE	FB	OUT OF RANGE	FC	OUT OF RANGE	Cs-α	C1+α
PAT=AAA ADR=21,43	0.5		3		0.03		-0.2	3.4
ADR=43,65	2.3	>L	14	>L	0.04		0.25	0.85
ADR=65,87	-4		-60	<L	-0.13	>L	-5.25	-0.25
ADR=87,109	1.5	>L	0		0.22	>L	0	0
ADR=109,111	0		0		0.08	>L	0	0
ADR=111,113	-1.5	<L	0		0.04	>L	0	0
ADR=113,PAT=BBB ADR=17	0		0		0.17	>L	0	0
PAT=BBB ADR=17,19	0		4	>L	0		0	0
ADR=19,21	1.5	>L	-4	<L	-0.17	<L	0	0
ADR=21,24	0		0		0.05	>L	0	0
ADR=24,26	0		0		0.04	>L	0	0
ADR=26,28	-1.5	<L	0		0.03	>L	0	0
ADR=28,30	0		0		0		0	0
ADR=30,PAT=CCC ADR=33	0.5		2	>L	0.03	<L	0.3	1.9
PAT=CCC ADR=33,36	-0.5		-2	<L	0	>L	-1.9	-0.5
ADR=36,37	1.5		3		-0.21	<L	0.25	5.25
ADR=37,49	-1.5		-3		0.05	>L	-5.25	-0.25

Cs: MIN. VALUE, C1: MAX. VALUE, α = (C1-Cs)/2

FIG. 10

CRITERIA RANGE CHANGE RATE "L"

$$Cs - \alpha < L < C1 + \alpha$$

Cs: MIN. VALUE OF CHANGE RATE OF CURRENT VALUE IN PASSED SAMPLE
C1: MAX. VALUE OF CHANGE RATE OF CURRENT VALUE IN PASSED SAMPLE
α: ERROR (=(C1-Cs)/2)

FIG. 12

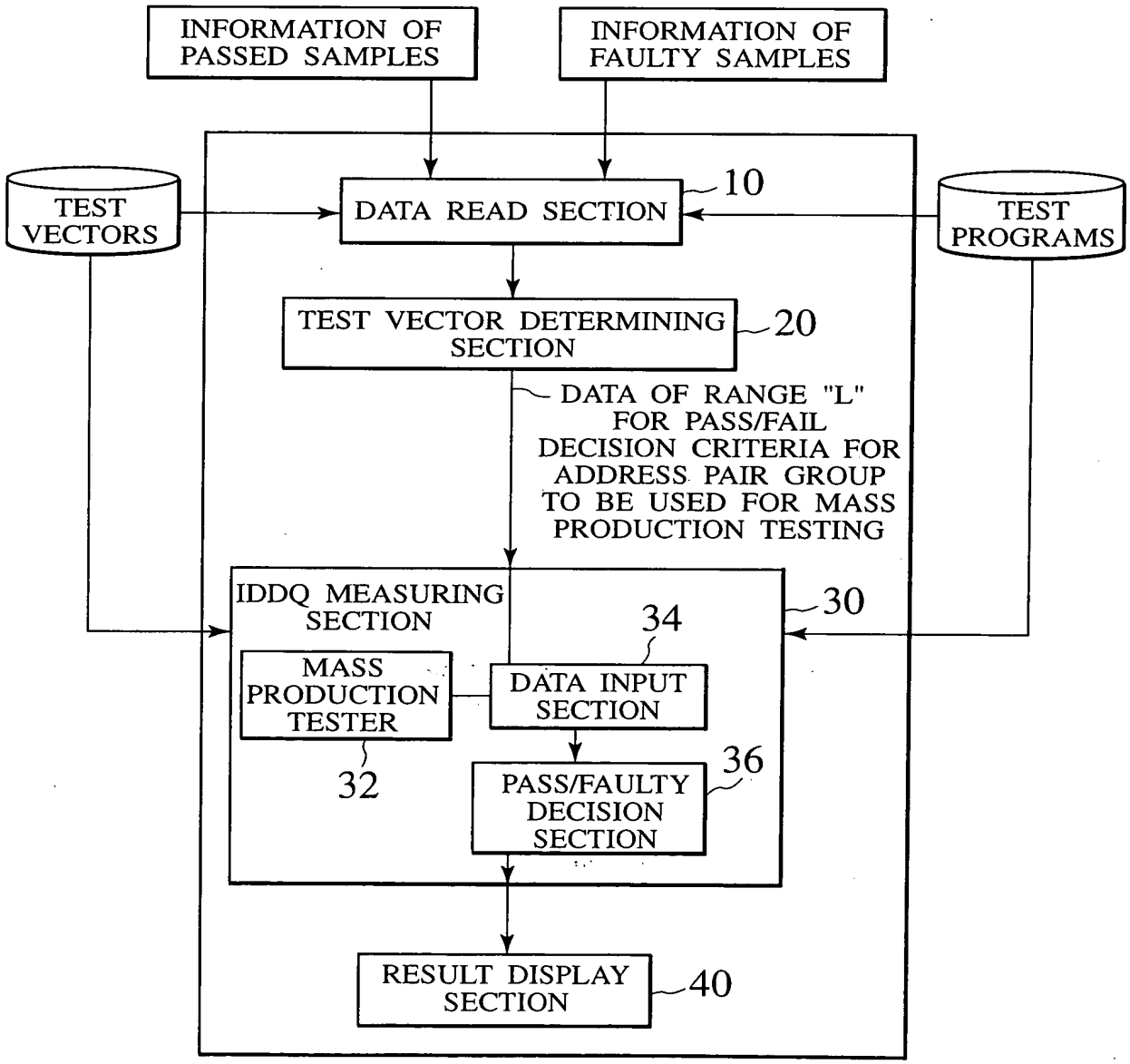


FIG. 13

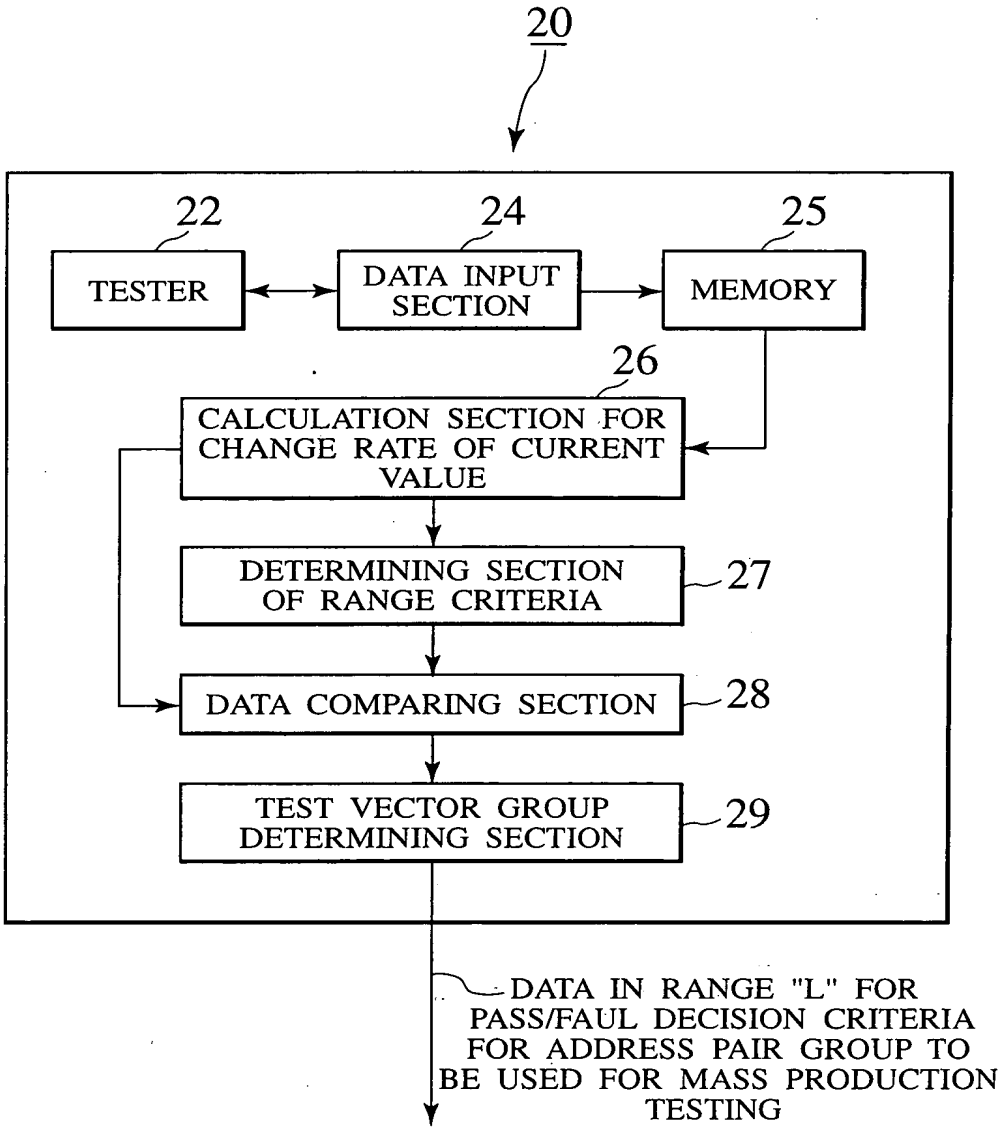

20
22
24
25
TESTER
DATA INPUT SECTION
MEMORY
26
CALCULATION SECTION FOR CHANGE RATE OF CURRENT VALUE
DETERMINING SECTION OF RANGE CRITERIA
27
DATA COMPARING SECTION
28
TEST VECTOR GROUP DETERMINING SECTION
29
DATA IN RANGE "L" FOR PASS/FAUL DECISION CRITERIA FOR ADDRESS PAIR GROUP TO BE USED FOR MASS PRODUCTION TESTING

FIG. 14

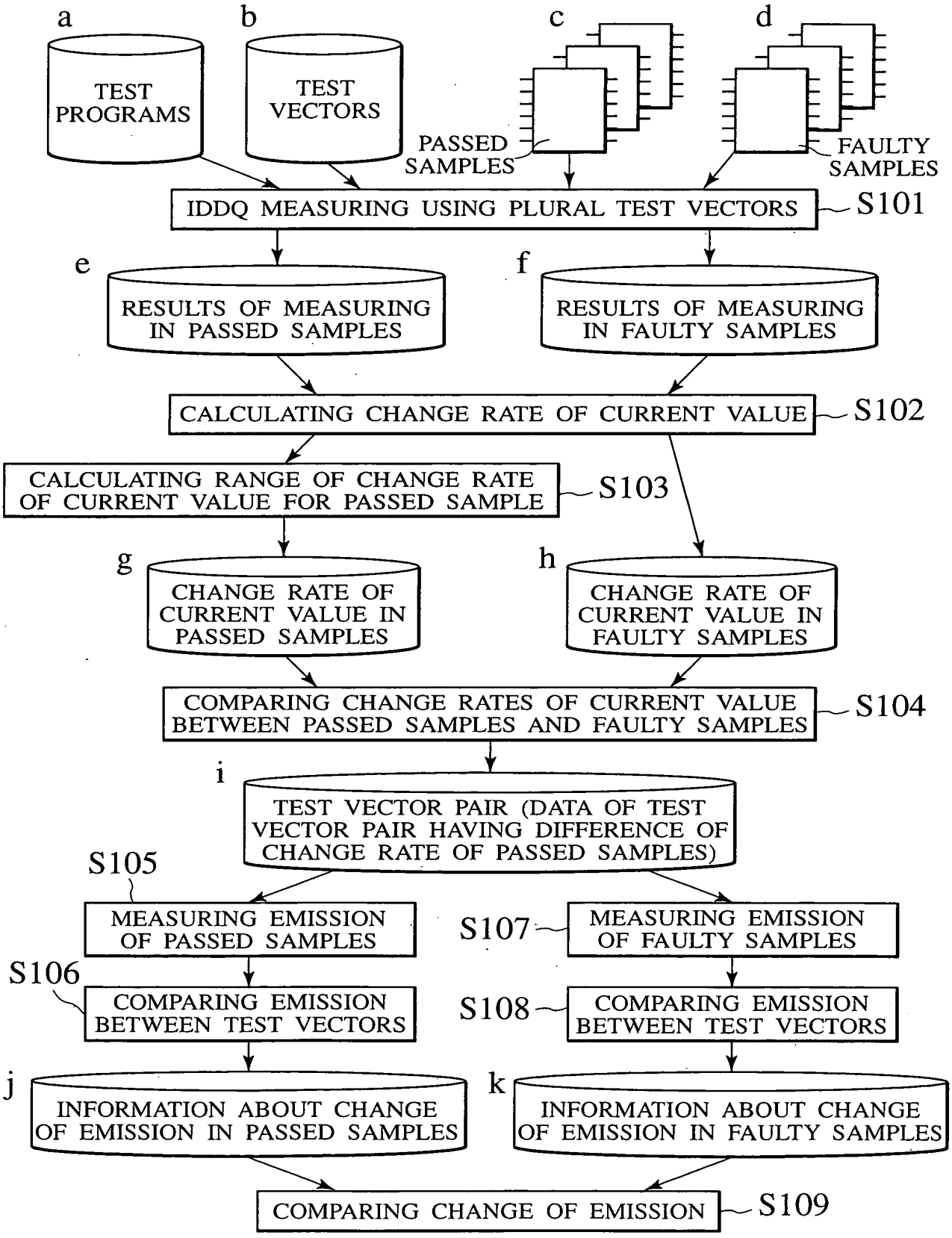

a
b
c
d
TEST PROGRAMS
TEST VECTORS
PASSED SAMPLES
FAULTY SAMPLES
IDDQ MEASURING USING PLURAL TEST VECTORS
S101
e
f
RESULTS OF MEASURING IN PASSED SAMPLES
RESULTS OF MEASURING IN FAULTY SAMPLES
CALCULATING CHANGE RATE OF CURRENT VALUE
S102
CALCULATING RANGE OF CHANGE RATE OF CURRENT VALUE FOR PASSED SAMPLE
S103
g
h
CHANGE RATE OF CURRENT VALUE IN PASSED SAMPLES
CHANGE RATE OF CURRENT VALUE IN FAULTY SAMPLES
COMPARING CHANGE RATES OF CURRENT VALUE BETWEEN PASSED SAMPLES AND FAULTY SAMPLES
S104
i
TEST VECTOR PAIR (DATA OF TEST VECTOR PAIR HAVING DIFFERENCE OF CHANGE RATE OF PASSED SAMPLES)
S105
MEASURING EMISSION OF PASSED SAMPLES
S107
MEASURING EMISSION OF FAULTY SAMPLES
S106
COMPARING EMISSION BETWEEN TEST VECTORS
S108
COMPARING EMISSION BETWEEN TEST VECTORS
j
k
INFORMATION ABOUT CHANGE OF EMISSION IN PASSED SAMPLES
INFORMATION ABOUT CHANGE OF EMISSION IN FAULTY SAMPLES
COMPARING CHANGE OF EMISSION
S109

FIG. 15A

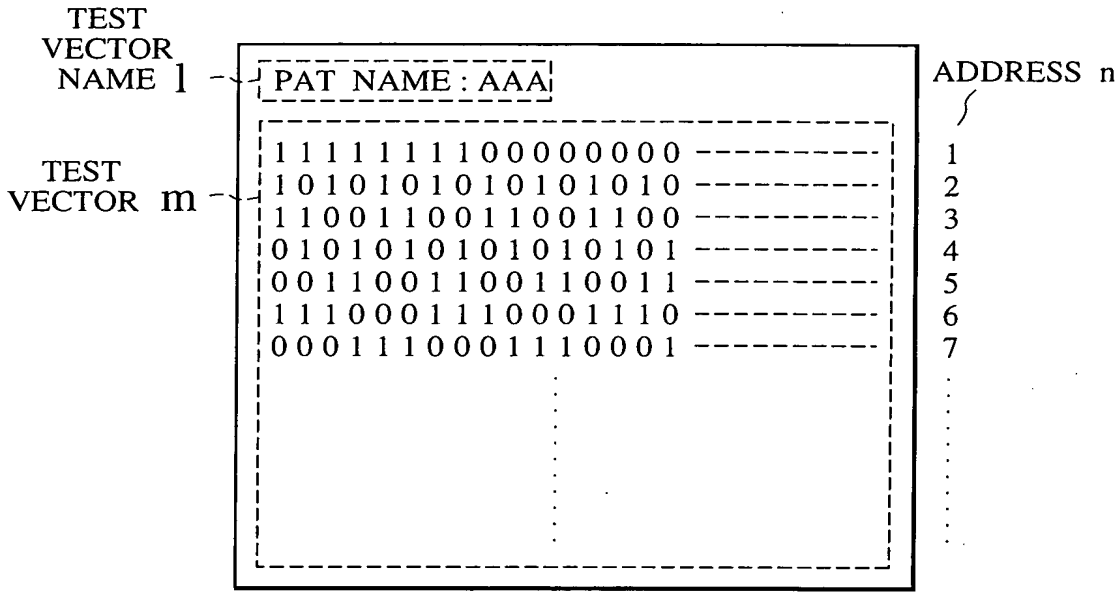


FIG. 15B

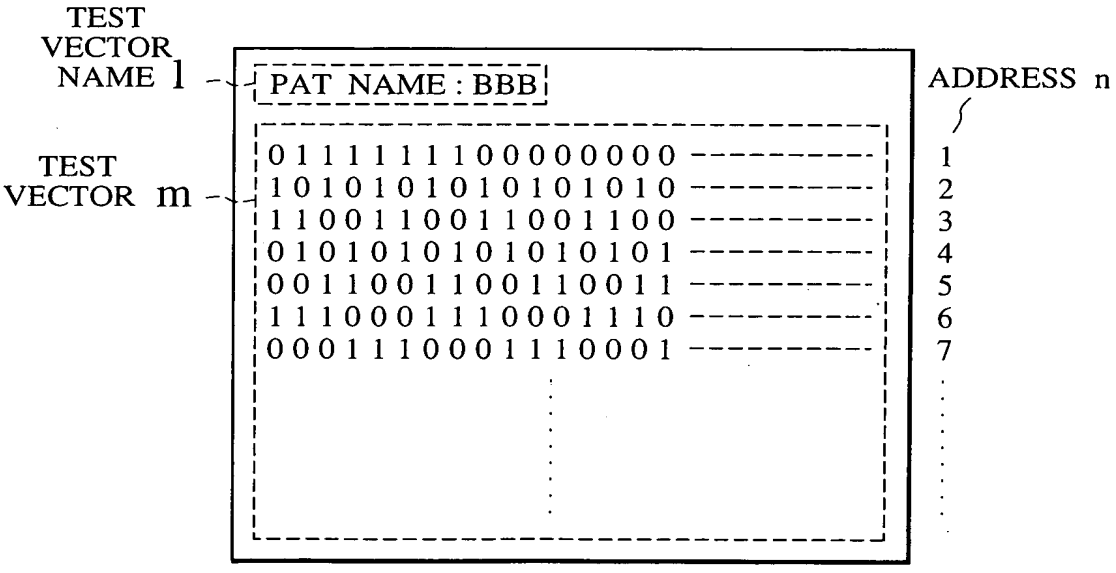


FIG. 16

PASSED SAMPLE PA

PAT=AAA	ADR=21	IDDQ=1uA
	ADR=43	IDDQ=3uA
	ADR=65	IDDQ=5uA
	ADR=87	IDDQ=1uA
	ADR=109	IDDQ=1uA
	ADR=111	IDDQ=1uA
	ADR=113	IDDQ=1uA
PAT=BBB	ADR=17	IDDQ=1uA
	ADR=19	IDDQ=1uA
	ADR=21	IDDQ=1uA
	ADR=24	IDDQ=1uA
	ADR=26	IDDQ=1uA
	ADR=28	IDDQ=1uA
	ADR=30	IDDQ=1uA
PAT=CCC	ADR=33	IDDQ=2uA
	ADR=36	IDDQ=1uA
	ADR=37	IDDQ=5uA
	ADR=49	IDDQ=1uA
	⋮	

PASSED SAMPLE PB

PAT=AAA	ADR=21	IDDQ=2uA
	ADR=43	IDDQ=7uA
	ADR=65	IDDQ=10uA
	ADR=87	IDDQ=2uA
	ADR=109	IDDQ=2uA
	ADR=111	IDDQ=2uA
	ADR=113	IDDQ=2uA
PAT=BBB	ADR=17	IDDQ=2uA
	ADR=19	IDDQ=2uA
	ADR=21	IDDQ=2uA
	ADR=24	IDDQ=2uA
	ADR=26	IDDQ=2uA
	ADR=28	IDDQ=2uA
	ADR=30	IDDQ=2uA
PAT=CCC	ADR=33	IDDQ=5uA
	ADR=36	IDDQ=2uA
	ADR=37	IDDQ=7uA
	ADR=49	IDDQ=2uA
	⋮	

PASSED SAMPLE PC

PAT=AAA	ADR=21	IDDQ=6uA
	ADR=43	IDDQ=10uA
	ADR=65	IDDQ=15uA
	ADR=87	IDDQ=6uA
	ADR=109	IDDQ=6uA
	ADR=111	IDDQ=6uA
	ADR=113	IDDQ=6uA
PAT=BBB	ADR=17	IDDQ=6uA
	ADR=19	IDDQ=6uA
	ADR=21	IDDQ=6uA
	ADR=24	IDDQ=6uA
	ADR=26	IDDQ=6uA
	ADR=28	IDDQ=6uA
	ADR=30	IDDQ=6uA
PAT=CCC	ADR=33	IDDQ=6uA
	ADR=36	IDDQ=10uA
	ADR=37	IDDQ=15uA
	ADR=49	IDDQ=6uA
	⋮	

FAULTY SAMPLE FA

PAT=AAA	ADR=21	IDDQ=2uA
	ADR=43	IDDQ=3uA
	ADR=65	IDDQ=10uA
	ADR=87	IDDQ=2uA
	ADR=109	IDDQ=5uA
	ADR=111	IDDQ=5uA
	ADR=113	IDDQ=2uA
PAT=BBB	ADR=17	IDDQ=2uA
	ADR=19	IDDQ=2uA
	ADR=21	IDDQ=5uA
	ADR=24	IDDQ=5uA
	ADR=26	IDDQ=5uA
	ADR=28	IDDQ=2uA
	ADR=30	IDDQ=2uA
PAT=CCC	ADR=33	IDDQ=3uA
	ADR=36	IDDQ=2uA
	ADR=37	IDDQ=5uA
	ADR=49	IDDQ=2uA
	⋮	

FAULTY SAMPLE FB

PAT=AAA	ADR=21	IDDQ=1uA
	ADR=43	IDDQ=4uA
	ADR=65	IDDQ=30uA
	ADR=87	IDDQ=1uA
	ADR=109	IDDQ=1uA
	ADR=111	IDDQ=1uA
	ADR=113	IDDQ=1uA
PAT=BBB	ADR=17	IDDQ=1uA
	ADR=19	IDDQ=5uA
	ADR=21	IDDQ=1uA
	ADR=24	IDDQ=1uA
	ADR=26	IDDQ=1uA
	ADR=28	IDDQ=1uA
	ADR=30	IDDQ=1uA
PAT=CCC	ADR=33	IDDQ=3uA
	ADR=36	IDDQ=1uA
	ADR=37	IDDQ=4uA
	ADR=49	IDDQ=1uA
	⋮	

FAULTY SAMPLE FC

PAT=AAA	ADR=21	IDDQ=14.72uA
	ADR=43	IDDQ=15.20uA
	ADR=65	IDDQ=15.80uA
	ADR=87	IDDQ=14.00uA
	ADR=109	IDDQ=17.08uA
	ADR=111	IDDQ=15.82uA
	ADR=113	IDDQ=15.26uA
PAT=BBB	ADR=17	IDDQ=17.80uA
	ADR=19	IDDQ=17.82uA
	ADR=21	IDDQ=15.24uA
	ADR=24	IDDQ=15.94uA
	ADR=26	IDDQ=16.54uA
	ADR=28	IDDQ=17.20uA
	ADR=30	IDDQ=17.20uA
PAT=CCC	ADR=33	IDDQ=17.80uA
	ADR=36	IDDQ=17.72uA
	ADR=37	IDDQ=14.62uA
	ADR=49	IDDQ=15.40uA
	⋮	

FIG. 17A

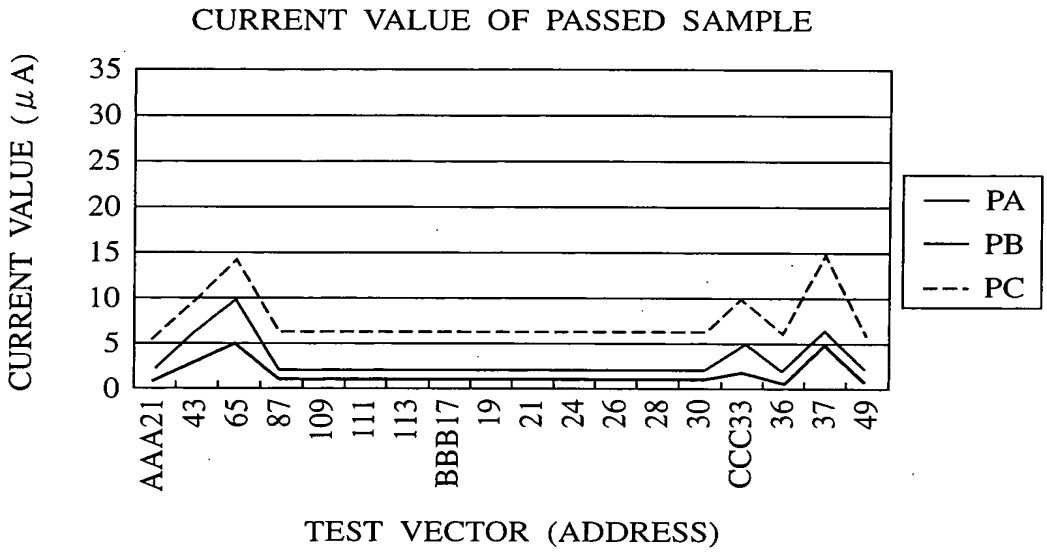


FIG. 17B

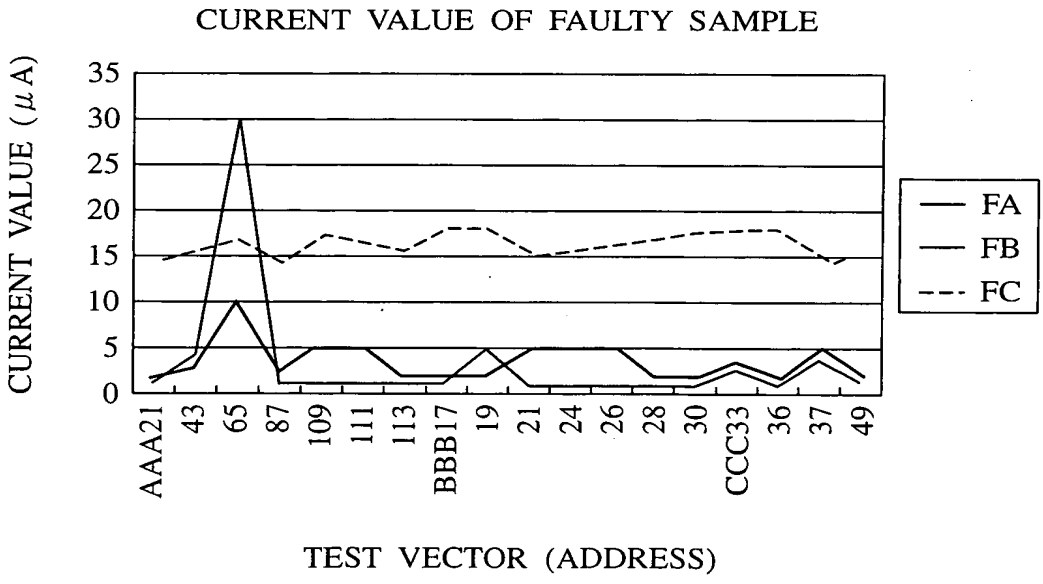


FIG. 18

WHEN CURRENT VALUE BEFORE CHANGE IS "a", AND, "b" AFTER CHANGE IN OPTIONALLY CHANGEABLE TWO MEASURING ADDRESSES THAT ARE OPTIONALLY CHANGEABLE, CHANGE RATE "C" IS DEFINED AS FOLLOWS.

WHEN $b > a$

$$C = \frac{b-a}{a}$$

WHEN $a > b$

$$C = \frac{b-a}{b}$$

WHEN MIN. VALUE IS Cs AND MAX. VALUE IS C1 IN CHANGE RATES OF PASSE SAMPLE, RANGE "L" OF CHANGE RATE OF PASSED SAMPLE IS AS FOLLOWS.

$$Cs < L < C1$$

FIG. 19

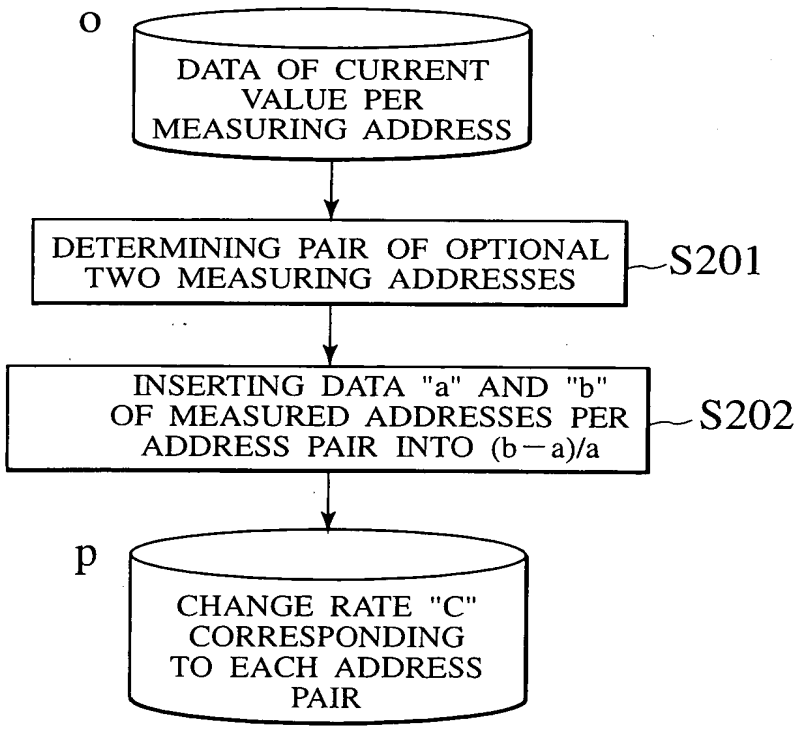


FIG. 20A

CHANGE RATE OF CURRENT VALUE PER ADDRESS PAIR IN PASSED SAMPLES

PAIR OF CONTINUOUS TWO TEST VECTORS	CHANGE RATE			RANGE OF PASSED SAMPLE	
	PA	PB	PC	MIN.	MAX.
PAT=AAA ADR=21,43	2	2.5	0.7	0.7	2.5
ADR=43,65	0.7	0.4	0.5	0.4	0.7
ADR=65,87	-4	-4	-1.5	-4	-1.5
ADR=87,109	0	0	0	0	0
ADR=109,111	0	0	0	0	0
ADR=111,113	0	0	0	0	0
ADR=113,PAT=BBB ADR=17	0	0	0	0	0
PAT=BBB ADR=17,19	0	0	0	0	0
ADR=19,21	0	0	0	0	0
ADR=21,24	0	0	0	0	0
ADR=24,26	0	0	0	0	0
ADR=26,28	0	0	0	0	0
ADR=28,30	0	0	0	0	0
ADR=30,PAT=CCC ADR=33	1	1.5	0.7	0.7	1.5
PAT=CCC ADR=33,36	-1	-1.5	-0.7	-1.5	-0.7
ADR=36,37	4	2.5	1.5	1.5	4
ADR=37,49	-4	-2.5	-1.5	-4	-1.5

FIG. 20B

CHANGE RATE OF CURRENT VALUE PER ADDRESS PAIR IN FAULTY SAMPLES

PAIR OF CONTINUOUS TWO TEST VECTORS	CHANGE RATE "C"/ OUT OF RANGE OF PASSED SAMPLE ?						RANGE OF PASSED SAMPLE	
	FA	DIFFE-RENCE	FB	DIFFE-RENCE	FC	DIFFE-RENCE	MIN.	MAX.
PAT=AAA ADR=21,43	0.5	-0.2	3	+0.5	0.03	-0.87	0.7	2.5
ADR=43,65	2.3	+1.8	14	+13.3	0.04	-0.38	0.4	0.7
ADR=65,87	-4		-60	-56	-0.13	+0.37	-4	-1.5
ADR=87,109	1.5	+1.5	0		0.22	+0.22	0	0
ADR=109,111	0		0		0.08	+0.08	0	0
ADR=111,113	-1.5	-1.5	0		0.04	+0.04	0	0
ADR=113,PAT=BBB ADR=17	0		0		0.17	+0.17	0	0
PAT=BBB ADR=17,19	0		4	+4	0		0	0
ADR=19,21	1.5	+1.5	-4	-4	-0.17	-0.17	0	0
ADR=21,24	0		0		0.05	+0.05	0	0
ADR=24,26	0		0		0.04	+0.05	0	0
ADR=26,28	-1.5	-1.5	0		0.03	+0.03	0	0
ADR=28,30	0		0		0		0	0
ADR=30,PAT=CCC ADR=33	0.5	-0.2	2	+0.5	0.03	-0.07	0.7	1.5
PAT=CCC ADR=33,36	-0.5	-0.2	-2	-0.5	0	+0.7	-1.5	-0.7
ADR=36,37	1.5		3		-0.21	-1.71	1.5	4
ADR=37,49	-1.5		-3		0.03	+1.45	-4	-1.5

FIG. 21A

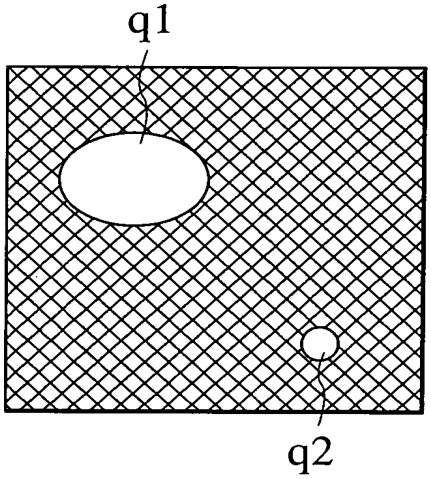


FIG. 21B

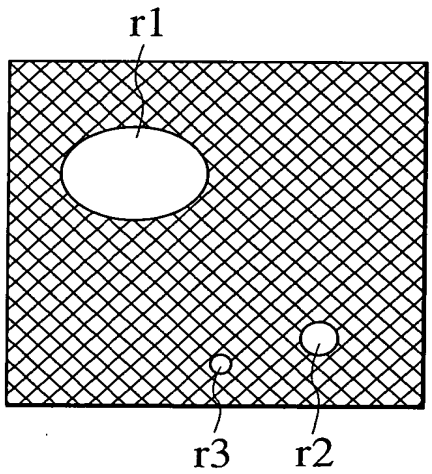


FIG. 22

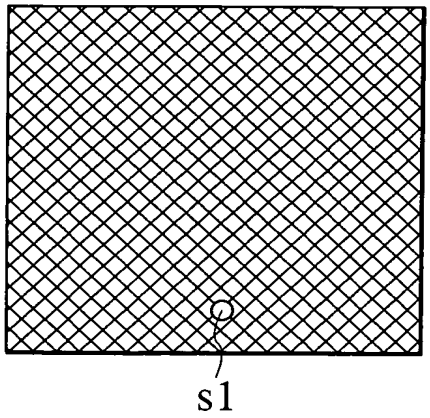


FIG. 23A

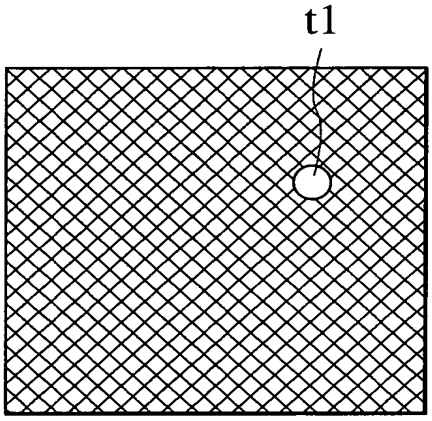


FIG. 23B

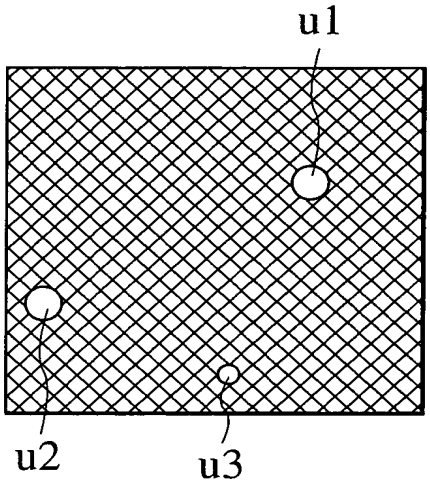


FIG. 24

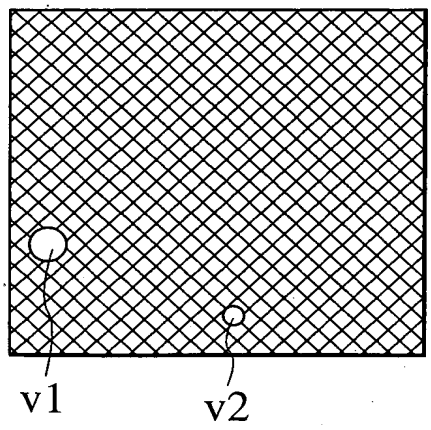


FIG. 25A

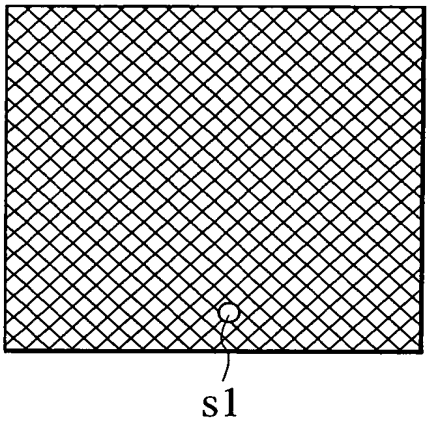
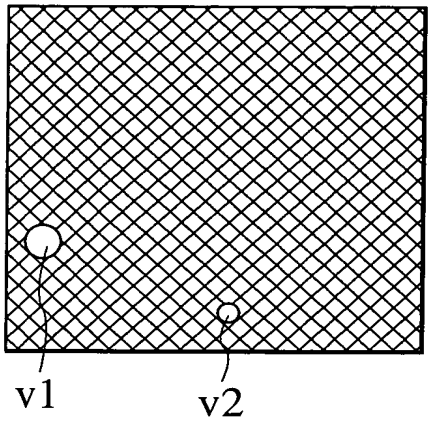


FIG. 25B



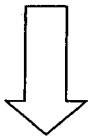


FIG. 25C

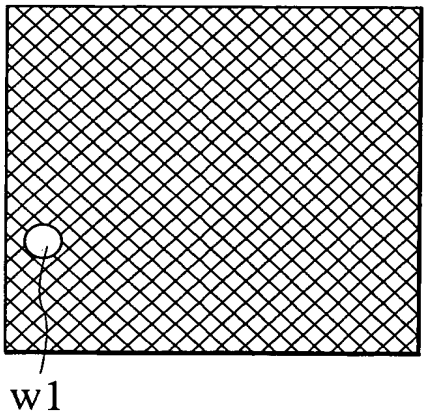


FIG. 26

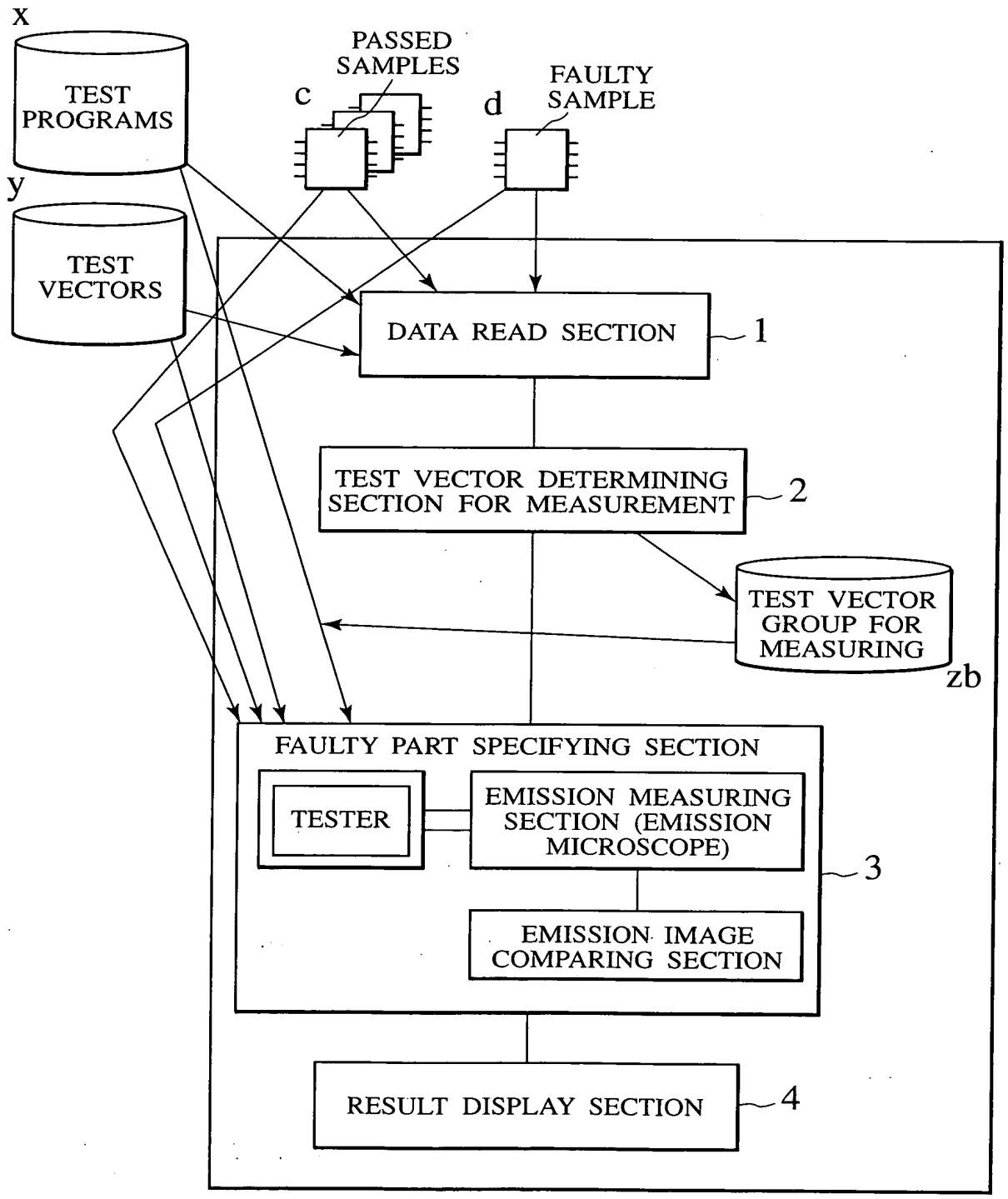

x
TEST PROGRAMS
y
TEST VECTORS
PASSED SAMPLES
c
d
FAULTY SAMPLE
DATA READ SECTION
1
TEST VECTOR DETERMINING SECTION FOR MEASUREMENT
2
TEST VECTOR GROUP FOR MEASURING
zb
FAULTY PART SPECIFYING SECTION
TESTER
EMISSION MEASURING SECTION (EMISSION MICROSCOPE)
3
EMISSION IMAGE COMPARING SECTION
RESULT DISPLAY SECTION
4

FIG. 27

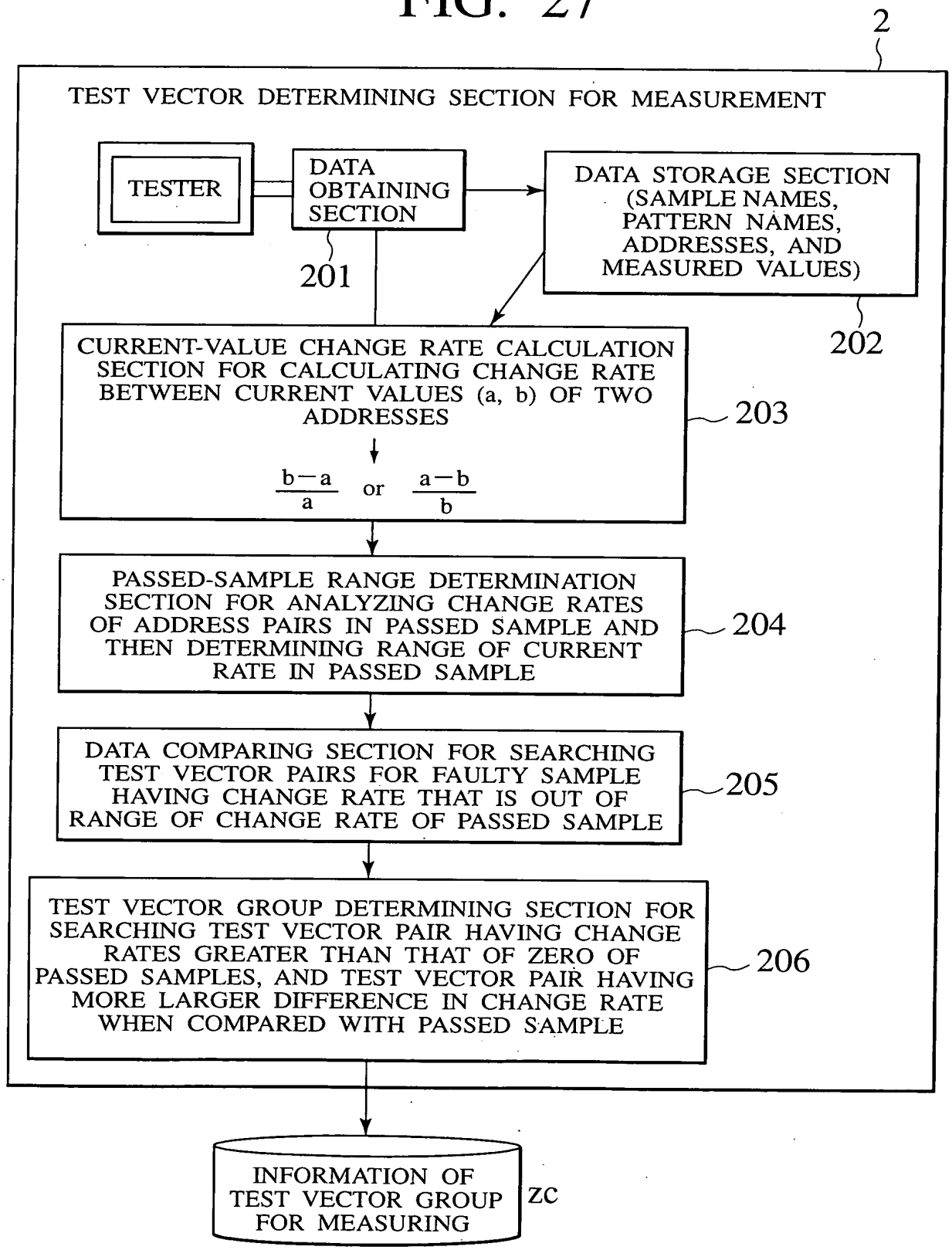
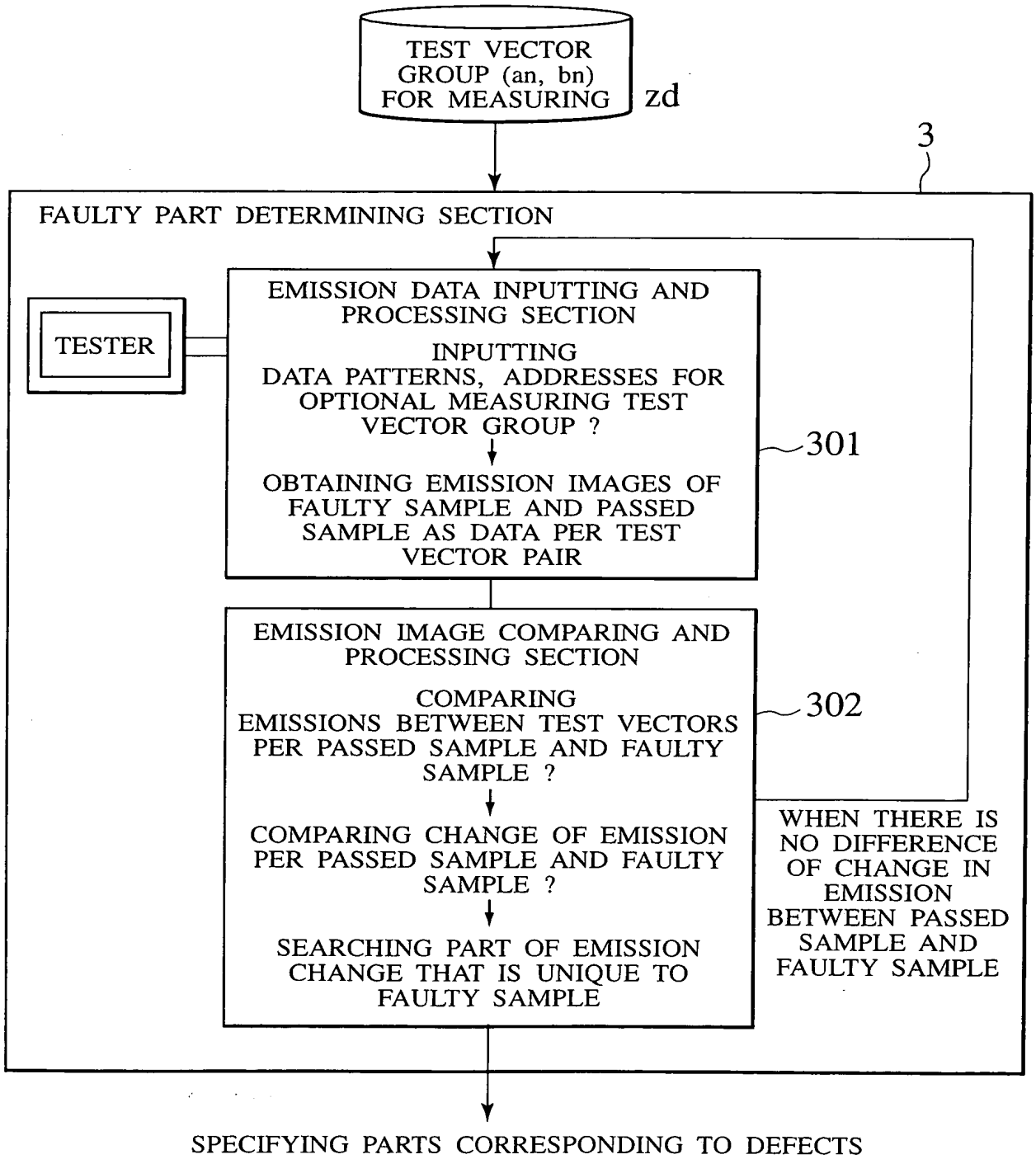

2
TEST VECTOR DETERMINING SECTION FOR MEASUREMENT
TESTER
DATA OBTAINING SECTION
201
DATA STORAGE SECTION (SAMPLE NAMES, PATTERN NAMES, ADDRESSES, AND MEASURED VALUES)
202
CURRENT-VALUE CHANGE RATE CALCULATION SECTION FOR CALCULATING CHANGE RATE BETWEEN CURRENT VALUES (a, b) OF TWO ADDRESSES
(b−a)/a or (a−b)/b
203
PASSED-SAMPLE RANGE DETERMINATION SECTION FOR ANALYZING CHANGE RATES OF ADDRESS PAIRS IN PASSED SAMPLE AND THEN DETERMINING RANGE OF CURRENT RATE IN PASSED SAMPLE
204
DATA COMPARING SECTION FOR SEARCHING TEST VECTOR PAIRS FOR FAULTY SAMPLE HAVING CHANGE RATE THAT IS OUT OF RANGE OF CHANGE RATE OF PASSED SAMPLE
205
TEST VECTOR GROUP DETERMINING SECTION FOR SEARCHING TEST VECTOR PAIR HAVING CHANGE RATES GREATER THAN THAT OF ZERO OF PASSED SAMPLES, AND TEST VECTOR PAIR HAVING MORE LARGER DIFFERENCE IN CHANGE RATE WHEN COMPARED WITH PASSED SAMPLE
206
INFORMATION OF TEST VECTOR GROUP FOR MEASURING
ZC

FIG. 28


TEST VECTOR GROUP (an, bn) FOR MEASURING
zd
3
FAULTY PART DETERMINING SECTION
TESTER
EMISSION DATA INPUTTING AND PROCESSING SECTION
INPUTTING DATA PATTERNS, ADDRESSES FOR OPTIONAL MEASURING TEST VECTOR GROUP ?
OBTAINING EMISSION IMAGES OF FAULTY SAMPLE AND PASSED SAMPLE AS DATA PER TEST VECTOR PAIR
301
EMISSION IMAGE COMPARING AND PROCESSING SECTION
COMPARING EMISSIONS BETWEEN TEST VECTORS PER PASSED SAMPLE AND FAULTY SAMPLE ?
COMPARING CHANGE OF EMISSION PER PASSED SAMPLE AND FAULTY SAMPLE ?
SEARCHING PART OF EMISSION CHANGE THAT IS UNIQUE TO FAULTY SAMPLE
302
WHEN THERE IS NO DIFFERENCE OF CHANGE IN EMISSION BETWEEN PASSED SAMPLE AND FAULTY SAMPLE
SPECIFYING PARTS CORRESPONDING TO DEFECTS